

REMARKS

Claims 1-3, 6-13, 21-25, 27-34, and 39-53 are currently pending in the application. No new matter has been added.

I. OBJECTIONS TO THE DRAWINGS

A. The Office Action indicates that the drawings have been objected to under 37 C.F.R. 1.83(a). Enclosed herewith is a set of corrected drawings pursuant to 37 CFR 121(d) to replace the previously filed unacceptable drawings. Replacement sheets have been provided for all existing figures. A new sheet with FIG. 4G has been added to the drawings to address the drawing objections, which shows the first and second portions of the filters (464, 466) and the first and second target materials (474, 476). Support for FIG. 4G can be found in the Specification at page 25, paragraph 0045, and page 27, paragraph 0047. Based upon the submission of the corrected drawings, Applicants respectfully request withdrawal of the drawing objections.

II. CLAIM REJECTIONS UNDER 35 U.S.C. § 102

A. Claims 1-3, 7, 9-12, 21-25, 27-33, 39-41, 43, 45, 51, and 52 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2004/0247082 A1 published by Hoffman et al. (Hoffman). Applicants respectfully traverse. Applicants further note that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” MPEP 2131.

For claim 1 there are one or more claimed limitations that are not disclosed, taught or suggested by the cited references. Claim 1 recites the following limitations:

a radiation filter having a first portion and a second portion, the first and the second portions forming a layer for filtering radiation impinging thereon, wherein the first portion is made from a first x-ray filtering material, and the second portion is made from a second x-ray filtering material;
a structure having a cavity, the radiation filter in operative association with the structure;
and
a disk located within the cavity, the disk having *a first target material* and *a second target material*.

1. Applicant respectfully submits that Hoffman does not disclose or suggest a disk having a first target material and a second target material.

Hoffman is directed toward creating an x-ray image having multiple energy differentiable characteristics generated in response to the x-ray beam. (Hoffman, Abstract). According to the Office Action, Figure 6 of Hoffman allegedly discloses a disk having a first target material and a second target material. However, the corresponding text for Figure 6 of Hoffman discloses a cathode-emitting device and a second cathode-emitting device emit electrons that are directed to impinge upon a first rotating target 102 and a second rotating target 104 *of the same anode* 106. (Hoffman, page 4, paragraph 0045). A first kVp exists between the first cathode-emitting device and the target material 102, and a second kVp exists between the second cathode-emitting device and *the same target material* 104. (Hoffman, page 4, paragraph 0045). Thus, Hoffman teaches multiple targets with differing kVp energy levels for *the same anode* (ie. target material) and does not disclose or suggest a disk having a first target material and a second target material.

For at least this reason, Applicants respectfully submits that amended claims 1 are allowable over Hoffman.

2. Claims 21 and 39 recite sufficiently the same limitations as claim 1 and therefore are patentable over Hoffman for the same reasons.
3. Claims 2-3, 7, 9-12, 22-25, 27-33, 40-41, 43, 45, 51, and 52 are rejected under depend on claims 1, 21, and 39, and therefore, are patentable over Hoffman for at least the same reasons.

III. CLAIM REJECTIONS UNDER 35 U.S.C. § 103

A. Claims 1-3, 6-12, 21-25, 27-33, 39-41, and 43-53 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,614,878 issued to Bogatu et al. (Bogatu) in view of U.S. Patent No. 3,610,984 issued to Seki et al. (Seki).

1. In the Office Action, it is asserted that the combination of Bogatu and Seki would have been obvious to one of ordinary skill in the art at the time the invention was made to use two different target materials in the apparatus of Seki in operative association with the first and second filtering materials in Bogatu to further enhance contrast imaging. Applicants respectfully disagree. Applicants submit that there is no suggestion or motivation to make the stated combination

According to the Bogatu reference, a central objective of the Bogatu invention is to produce a digital image signal substantially equivalent to an image signal obtained with a *narrow* energy band through an object to produce an enhanced contrast image. (Bogatu, col. 2, lines 23-27). Specifically, the Bogatu invention relies on the variation in the absorption coefficient of a contrast agent near K-Edge, the energy value at which the absorption coefficient jumps, to increase image contrast. (Bogatu, col. 1, lines 53-54). A unique filter set is created for each contrast agent to achieve the specific energy levels *just less than* K-Edge and *just greater than*

K-Edge. (Bogatu, col. 3, lines 27-30). Bogatu teaches taking a first image using radiation having an energy level *just less than* K-Edge and comparing the first image to a second image formed using radiation having an energy level *just greater than* K-Edge to produce a high contrast image of the internal features of the object. (Bogatu, col. 1, lines 60-65 through col. 2, lines 1-6). Thus, the whole principle behind Bogatu is to produce images using radiation energy levels *just greater than* or *just less than* a specific K-Edge energy level to produce an enhanced contrast image. (Bogatu, col. 2, lines 23-27).

In other words, Bogatu requires using radiation energy levels *just greater than* or *just less than* a specific K-Edge energy level to produce a digital image substantially equivalent to an image signal obtained with a *narrow* energy band through an object.

In contrast, the whole principle behind Seki is to enable a target plate to support a first energy level and a second energy level with a *large discrepancy* between the two energy levels. Seki is directed toward providing an anode target that can be used for both general purpose radiography, with possible voltages exceeding 80 kvp., and soft tissue mammographic pictures; requiring voltages ranging from 20 to 26 kvp. (Seki, col. 2, lines 65-72). Specifically, Seki teaches creation of an anode target with a material on a first focal plane that allows for emitting optimum X-rays for general purpose radiography, and a second anode target material on a second focal plane to take mammographic pictures. (Seki, col. 1, lines 68-75 through col. 2, lines 1-4).

Thus, the Seki invention requires a target plate that accommodates radiation energy levels in order to produce both general purpose radiography and soft tissue mammographic pictures. The proposed modification of Bogatu with the anode target of Seki, that accommodates not only

multiple energy levels but a first and second energy level with a large discrepancy between the two energy levels (i.e. including an energy level for general purpose radiography), would render Bogatu unsatisfactory for its intended purpose of producing a digital image substantially equivalent to an image signal obtained with a *narrow* energy band.

MPEP 2143.01 explicitly notes that there cannot be a motivation or suggestion to make a proposed modification if the proposed modification would render the prior art being modified unsatisfactory for its intended purpose. Since the proposed modification would render Bogatu unsatisfactory for its intended purpose, Applicants respectfully submit that there is no motivation to combine Bogatu with Seki to achieve the claimed invention.

CONCLUSION

If the Examiner has any questions or comments, please contact the undersigned at the number listed below.

The Commissioner is authorized to charge any fees due in connection with the filing of this document to Bingham McCutchen's Deposit Account No. 50-2518, referencing billing number **7036492002**. The Commissioner is authorized to credit any overpayment or to charge any underpayment to Bingham McCutchen's Deposit Account No. 50-2518, referencing billing number **7036492002**.

Respectfully submitted,
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